REMARKS

Claims 7, 19, and 24 have been amended. No claims have been cancelled or added. Hence, Claims 1 - 24 are pending in the Application.

In the previous Office Action, Applicant's arguments were deemed unpersuasive. However, the merits of several of the arguments were not discussed. Applicant is unable to ascertain the reasons the Examiner found these arguments unpersuasive, or whether some of them were considered at all. Applicant is therefore restating the arguments and respectfully requesting that the Examiner address each of them.

In addition, limitations of claims 7, 19, and 24 were improperly ignored and their rejection was improperly made. If the Examiner does not believe the pending claims are in a condition for allowance, it is respectfully requested that the Examiner withdraw the finality of this Office Action.

Applicant will also call the Examiner to schedule an interview after the Examiner returns on May 21, 2001. Applicant believes an interview would help to clarify outstanding issues regarding this matter.

SUMMARY OF REJECTIONS/OBJECTIONS

Claims 1 - 24 remain rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,560,005, issued to Hoover et al. *(Hoover).* These rejections are traversed.

DESCRIPTION OF CITED ART

The following description of the cited art is copied from Applicant's previous response.

Because the rejections were based on *Hoover,* a description of *Hoover* is useful. *Hoover* describes a technique for managing and locating objects used to model relational data from customer databases. From each customer database, relational data is imported into a remote

database associated with the customer database, and in particular, into objects stored in the remote database. The attributes of the objects are stored in object attribute tables. (Column 6, lines 41-56, Column 27, lines 11-18, line 27-36, Column 38, lines *30-50).* Each object is associated with an object identifier. (Column 13, lines 36-39, Column 22, lines 17-33). Attributes of an object may be replicated, that is, a particular attribute of an object may be stored in an object attribute table on multiple remote databases. (Column 24, lines 44-60, Column 32, lines 118). An object attribute table that stores data for an object does not necessarily contain data for all the attributes of the object, or the most current data for an attribute (Id., col. 27, lines 49 - 55).

An object broker maintains a map table. The object broker uses the map table to locate the object attribute tables that contain attributes for an object. The map table maps an object identifier to an object attribute table on one or more remote databases that contain the object. (Column 6, lines 33-42, lines *52-55,* Column 24, lines 2-60, Column *35,* lines 7-19).

In addition, the object broker maintains object index tables that map key values (i.e. attributes) to object identifiers. (Column *25,* lines 10-15). The object broker uses the object index table to find an object identifier mapped to a key value, and uses the object identifier to find the object attribute tables and the locations mapped to the object identifier. (Column *53,* lines 8-48).

Object identifiers are permanently assigned to objects when the objects are created in the object attributes tables. (Column 22, lines 4146). Specifically, each remote database is assigned a range of unique numbers. As objects are created on a remote database system, each object is assigned a permanent object identifier from the unique range assigned to the remoter database system. (id.) The object identifiers are sequentially assigned, and are not in any way based on the attribute of the object being assigned an object identifier.

Finally, *Hoover* discusses a method of updating data in the object attribute tables. Specifically, a customer database system transmits an update message to the object broker. The object broker transmits the message to one or more remote database. (Column *35,* line *52,*

Column 36, line 34)

LIMITATIONS OF CLAIMS 7, 19 AND 24 IMPROPERLY IGNORED

The Examiner stated the following with respect to the arguments presented for claims 7, 19, and 24 in the previous response.

> With respect to applicants argument "Hoover does not discuss "presenting column objects as attributes of another object," let alone generating such a column object based [on] data from a field of a row. Therefore, Hoover cannot possibly disclose or suggest in any way presenting data as objects that have as an attribute, a column object, where the column object is based on a plurality of rows" is not persuasive because the Examiner cannot find where Applicants' claims recite the claim limitations "presenting column objects as attributes of another object" and "where the column object is based on a plurality of fields from a plurality of rows."

The claims 7 and 24 as amended in the previous response, recite:

> reading a **first set of data from a plurality of fields from the set of one or more tables;**
> wherein said plurality of fields includes a field from each of a plurality of rows from said set of one or more tables;
> generating a **column object based on said first set of data**; and
> **presenting** a second set of data from said set of one or more tables as said object **that has said column object as an attribute**.

Applicant stated features in claim 7 and 24 were not found in the prior art. In stating these features, limitations of the claims where paraphrased. However, every feature stated was substantially, if not literally, supported by the claim language itself. Even though applicant believes the substantiality of this support is plain and obvious, Applicant has provided the following to show that the stated features are substantially and literally supported by the claim language.

The limitations supporting those features alleged to have not been found by the Examiner have been highlighted for the Examiner. Specifically, the feature that the "column object is based on a plurality of fields from a plurality of rows" is supported by "**first set of data**" that is read

from a **"plurality of fields from the set of one or more tables", "wherein said plurality of fields includes a field from each of a plurality of rows,"** and **"generating a column object based on said first set of data"**. Obviously, a column object generated from first data read from a plurality of fields from a plurality of rows is a column object based on a plurality of fields. The feature "presenting column objects as attributes of another object" is substantially supported in the claims by "**presenting** a second set of data from said set of one or more tables as said object **that has said column object as an attribute.**" Clearly, the object that has as an attribute the column object is another object with respect to the column object.

Because the Examiner alleged that the features that Applicant argued were patentable were not supported by the claims, the Examiner has apparently ignored them. As a consequence, limitations of claims were improperly ignored when issuing the rejection, and the rejection was improperly made. It is respectfully requested that if the Examiner does not find that the claims are in a condition for allowance, that the Examiner withdraw the finality of the latest Office Action.

AMENDED CLAIMS 7, 19, and 24

Claims 7 and 24 recite:

reading a **first set of data from a plurality of cells from the set of one or more tables;**
wherein said plurality of cells includes a cell from each of a **plurality of rows from said set of one or more tables**;
generating a column object based on said first set of data; and
presenting a second set of data from said set of one or more tables as said object **that has said column object as an attribute.**

Claim 19 recites:

said processor configured to read a **first set of data from a plurality of cells from one or more rows from the set of one or more tables;**
wherein said plurality of cells includes a cell from each of a **plurality of rows from**

said one or more tables;
said processor configured **to generate a column object** based on said first set of data; and
said processor configured to represent a second set of data from said set of one or more tables as said object **that has said column object as an attribute**.

Hoover does disclose returning data derived from a relational database as object oriented data. However, Claims 7, 19, and 24 are not claiming the general notion of presenting relational data as object oriented data. Claims 7, 19, and 24 are more specific. In particular, Claims 7, 19, and 24 recite a system for (1) generating a column object based on data read from a plurality of cells from a plurality of rows and (2) presenting the column object as an attribute of another object. As the Office Action admits, *Hoover* does not discuss presenting column objects as attributes of another object, let alone generating such a column object based on data from a cell of a row. Therefore, *Hoover* cannot possibly disclose or suggest in any way presenting data as objects that have, as an attribute, a column object, where the column object is based on a plurality of cells from a plurality of rows.

CLAIMS 1, 16, AND 20

Claims 1 and 20 recite:

reading data from one or more rows of the set of one or more tables;
generating an object id based on values from said one or more rows; and
presenting data from said one or more rows as an object having said object id.

Claim 16 recites:

said processor configured to read data from one or more rows of the set of one or more tables;
said processor configured to generate an object id based on values from said one or more rows; and
said processor configured to present data from said one or more rows as an object having said object id.

In rejecting Claims 1, 16, and 20, the Office Action restates the following.

> Hoover did not teach, generating an object id based on values from one or more rows, but it would have been obvious to one having ordinary skill in the art at the time the invention was made to have one or more rows and to generate an object id based on values from the rows because a relational database consists of tables of rows and columns that define a relationship between things in each including one or more object attributes employed by users to identify object instances. (page 2, section 3)

As stated in the previous Response by Applicant, the Office Action admits *Hoover* does not disclose generating an object id based on data from rows. In fact, *Hoover* teaches away from generating object identifiers based on data from rows. In *Hoover,* object identifiers are generated before an object is instantiated. Specifically, a predetermined set of object identifiers are generated. When an object is instantiated, it is sequentially assigned an identifier from the set. An entry is then created in a table that maps the object id to the object. A system that expressly generates object identifiers before the objects are instantiated, before it can known what rows contain the attribute values of the objects, teaches away from generating an object id based on data from rows.

If Examiner has considered this argument, it is respectfully requested that that Examiner state the reasons the Examiner finds this argument unpersuasive, and in particular, why the Examiner believes *Hoover* may be combined with a step it admittedly does not disclose in light of the approach it teaches for generating object identifiers.

It is respectfully requested that the Examiner reconsider all of the pending claims, which are now in condition for allowance. Therefore, the issuance of a formal Notice of Allowance is believed next in order, and that action is most earnestly solicited. If a formal Notice of Allowance

is not issued next in order, it is respectfully requested that the finality of this Office Action be removed.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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CERTIFICATE OF MAILING

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on May 16, 2001 (Date) by Trudy Bagdon (Signature)

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MARKED-UP CLAIMS

1. (Not Amended) A method for presenting data from a set of one or more tables as a set of objects, the method comprising the steps of:
reading data from one or more rows of the set of one or more tables;
generating an object id based on values from said one or more rows; and
presenting data from said one or more rows as an object having said object id.

2. (Not Amended) The method of Claim 1, wherein the step of generating an object id based on values includes generating an object id based on values from one or more rows of a relational table that belongs to the set of one or more tables.

3. (Not Amended) The method of Claim 1, further comprising the step of
generating a reference to the object based on the object id.

4. (Not Amended) The method of Claim 3, further comprising the step of accessing the object based on the reference generated for the object.

5. (Not Amended) The method of Claim 1, wherein:
the method further includes the steps of:
receiving a request to define a view, said request specifying one or more columns of the set of one or more tables containing values used to generate said object id;

in response to receiving the request to define the view, storing specification data that specifies the one or more columns; and

the step of generating an object id based on values from said one or more rows includes determining how to generate the object id by inspecting said specification data.

6. (Not Amended) The method of Claim 5, wherein the step of receiving a request to define a view includes receiving a request that specifies the one or more columns as including at least one column from a relational table.

7. (Amended) A method for presenting, as an [obiect,] object data from a set of one or more tables residing in one or more databases, the method comprising the steps of:

reading a first set of data from a plurality of [fields] cells from the set of one or more tables;

wherein said plurality of [fields] cells includes a [field] cell from each of a plurality of rows;

generating a column object based on said first set of data; and

presenting a second set of data from said set of one or more tables as said object that has said column object as an attribute.

8. (Not Amended) The method of Claim 7, wherein the step of reading data from one or more rows includes reading data from one or more rows of at least one relational table.

9. (Not Amended) The method of Claim 7, wherein the step of generating a column object includes generating a collection object.

10. (Not Amended) The method of Claim 9, wherein the step of generating a collection object includes generating said collection object as a list of elements belonging to a single data type.

11. (Not Amended) The method of Claim 9, wherein the step of generating a collection object includes generating said collection object as a nested table.

12. (Not Amended) The method of Claim 9, wherein the step of generating a column object includes generating a column object belonging to a user specified object type.

13. (Not Amended) The method of Claim 9, where the step of generating a column object includes generating a column object that is a reference to another object.

14. (Not Amended) The method of Claim 13, wherein the step of generating a column object includes generating a column object that is a reference to an object presented by an object view.

15. (Not Amended) The method of Claim 13, wherein the step of generating a column object includes generating a column object that is a reference to an object residing in a database.

16. (Not Amended) A computer system, comprising:

a processor;

a memory coupled to said processor;

a set of one or more tables, said set of one or more tables containing one or more rows;

said processor configured to read data from one or more rows of the set of one or more tables;

said processor configured to generate an object id based on values from said one or more rows; and

said processor configured to present data from said one or more rows as an object having said object id.

17. (Not Amended) The computer system of Claim 16, wherein said values from said one or more rows includes values from one or more rows of a relational table that belongs to said set of one or more tables.

18. (Not Amended) The computer system of Claim 16, further comprising:

said processor configured to receive a request to define a view, said request specifying one or more columns of the set of one or more tables containing values used to generate said object id;

said processor configured to respond to receiving the request to define the view by storing specification data that specifies the one or more columns; and

said processor configured to generate the object id based on values from said one or more rows by determining how to generate the object id by inspecting said specification data.

19. (Amended) A computer system, comprising:

a processor;

a memory coupled to said processor;

one or more databases;

a set of one or more tables contained in said one or more databases;

said processor configured to read a first set of data from a plurality of [fields] cells from one or more rows from the set of one or more tables;

wherein said plurality of [fields] cells includes a [field] cell from each of a plurality of rows;

said processor configured to generate a column object based on said first set of data; and

said processor configured to represent a second set of data from said set of one or more tables as said object that has said column object as an attribute.

20. (Not Amended) A computer-readable medium carrying one or more sequences of one or more instructions for presenting data from a set of one or more tables as a set of objects, wherein the execution of the one or more sequences of the one or more instructions causes the one or more processors to perform the steps of:

reading data from one or more rows of the set of one or more tables;

generating an object id based on values from said one or more rows; and

presenting data from said one or more rows as an object having said object id.

21. (Not Amended) The computer readable medium Claim 20, wherein the step of generating an object id based on values includes generating an object id based on values from one or more rows of a relational table that belongs to the set of one or more tables.

22. (Not Amended) The computer readable medium of Claim 21, wherein:

the one or more sequences of instructions includes one or more instructions for performing the steps of:

receiving a request to define a view, said request specifying one or more columns of the set of one or more tables containing values used to generate said object id;

in response to receiving the request to define the view, storing specification data that specifies the one or more columns; and

the step of generating an object id based on values from said one or more rows includes determining how to generate the object id by inspecting said specification data.

23. (Not Amended) The computer readable medium of Claim 22, wherein the step of receiving a request to define a view includes receiving a request that specifies the one or more columns as including at least one column from a relational table.

24. (Amended) A computer-readable medium carrying one or more sequences of one or more instructions for presenting, as an object, data from a set of one or more tables residing in one or more databases, wherein the execution of the one or more sequences of the one or more instructions causes the one or more processors to perform the steps of:

reading a first set of data from a plurality of [fields] cells from the set of one or more tables;

wherein said plurality of [fields] cells includes a [field] cell from each of a plurality of rows

generating a column object based on said first set of data; and

presenting a second set of data from said set of one or more tables as said object that has said column object as an attribute.